

THE PRESIDENT'S ADDRESS

Delivered at the Fifty-First Annual Meeting
of the American Medical Association, held at
Atlantic City, N. J., June 5-8, 1900,



W. W. KEEN, M.D., LL.D.
Philadelphia

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BY W. W. KEEN, M.D., LL.D.

PHILADELPHIA.

Two duties seem to me to devolve on the President of the AMERICAN MEDICAL ASSOCIATION in his annual address: 1, to consider the condition of the ASSOCIATION, with any suggestions that may be made for improvement, and 2, to take up some subject of professional interest which may be properly considered before the chief representative medical body of the United States.

In pursuance of the former, it is a great pleasure to me to congratulate the ASSOCIATION on its marked prosperity. The AMERICAN MEDICAL ASSOCIATION now numbers about 9000 members. A large number, truly, but when we consider that there are over 100,000 regular physicians in the United States, it is strange and anomalous that this ASSOCIATION should comprise less than one in ten of these physicians. I call your attention to this important matter in order that every member of the ASSOCIATION during the coming year shall try at least to induce another fellow physician to join the ASSOCIATION and thus double its influence for good.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

One of the most important functions of the ASSOCIATION is the publication of THE JOURNAL. Here, again, I have only words of encouragement. The number of subscribers to THE JOURNAL is about 15,000—a number, undoubtedly, in excess of that of any other medical

journal in the United States, and I suspect only surpassed by the *British Medical Journal*, which publishes over 21,000 copies weekly. But it is not only on the number of subscribers that the ASSOCIATION is to be congratulated, but especially on the quality of the papers published in THE JOURNAL. It is, however, not only idle words of vague praise that we should bestow on the trustees and the able editor of THE JOURNAL, but we should recognize that never before in the history of THE JOURNAL has it been so well conducted, its pages so filled with admirable original articles and its influence for everything that makes for the best in medicine so potent as at present.

THE RUSH MONUMENT FUND.

Dr. Albert C. Gihon resigned at the last meeting as the Chairman of the Rush Monument Committee. It seemed to me that his successor should be a physician rather than a surgeon, and from Dr. Rush's native city. Accordingly, I appointed Dr. James C. Wilson to the vacancy.

The Committee reports actually in hand a little over \$11,000. This sum is too large to go backward, and it is not enough to go forward. In the hands of various state organizations, and possibly others, there are several thousands of dollars, I believe, which have been pledged to this fund. I recommend that action be taken, looking to the early completion of the fund. All the more is this suitable, when we remember that there will be erected in the city of Washington this year, or early next, a costly monument to Hahnemann, for which Congress has given a site.

THE ANTIVIVISECTION BILL.

Early in the session of the present Congress, there was introduced into the Senate, bill No. 34, commonly called the "antivivisection bill." The immense detriment that this would work both to man and animals was so evident that I deemed it my duty as your President to take the most active steps to prevent its becoming a law. I sent out letters to the president and secretary of every state medical society in the country, to prominent members of the profession in every state, to a

large number of influential men in the profession all over the country, and to college presidents, and others who could direct public opinion, and by all means in my power strove to arouse a public sentiment against the bill. I wish to bear public testimony to the enthusiasm and the unanimity with which my appeals were received. The profession in every part of the country responded nobly and exercised a wide and, I believe, an enduring influence on senators and representatives in establishing and confirming their judgment as to the inhumanity of any such bill.

In response to a communication addressed to the chairman of the Senate Committee on the District of Columbia, a hearing was granted in Washington before the subcommittee having charge of the bill, at which both the friends and the opponents of the measure were present and presented their arguments. Among those who spoke against the bill were Drs. William H. Welch,¹ Henry P. Bowditch, H. A. Hare, William Osler, Mary Putnam Jacobi, George M. Kober, Howard A. Kelly, D. E. Salmon, Brig.-Gen. George M. Sternberg, surgeon-general U. S. A., Bishop Lawrence, of Massachusetts, and myself. Certainly a more able array of speakers could hardly have been obtained, and I wish in your name, and in the name of humanity, to thank them for their self-sacrificing help.

Although in two prior Congresses the Committee on the District of Columbia had unanimously reported in favor of the bill, I am happy to say to you that the present committee has so far changed its views that I have reason to believe that the bill will either slumber in committee or be reported negatively. While it is to be hoped that this is the end of the present bill, it is by no means certain that it is the end of the agitation of those who are so blind to the progress of medicine and, therefore, to the dictates of humanity, but, I have no doubt that the effort will be renewed at some future time. If this should take place, I commend to the then President of the AMERICAN MEDICAL ASSOCIATION the duty of opposing the bill with all the vigor which he can use.

1. THE JOURNAL May 19 and 26.

Among the important contributions to antivivisection literature evoked by this discussion, none is more valuable than the letter addressed to the Chairman of the Committee on the District of Columbia, in opposition to the bill, by President Eliot, of Harvard College, which I venture to read to you:

HARVARD UNIVERSITY.

CAMBRIDGE, March 19, 1900.

Dear Sir:—I observe that a new bill on the subject of vivisection has been introduced into the Senate, bill No. 34. This bill is a slight improvement on its predecessor, but is still very objectionable. I beg leave to state very briefly the objection to all such legislation.

1. To interfere with or retard the progress of medical discovery is an inhuman thing. Within fifteen years medical research has made rapid progress, almost exclusively through the use of the lower animals, and what such research has done for the diagnosis and treatment of diphtheria it can probably do in time for tuberculosis, erysipelas, cerebrospinal meningitis, and cancer, to name only four horrible scourges of mankind which are known to be of germ origin.

2. The human race makes use of animals without the smallest compunction as articles of food and as laborers. It kills them, confines them, gelds them, and interferes in all manner of ways with their natural lives. The liberty we take with the animal creation in using utterly insignificant numbers of them for scientific researches is infinitesimal compared with the other liberties we take with animals, and it is that use of animals from which the human race has most to hope.

3. The few medical investigators can not properly be supervised or inspected or controlled by any of the ordinary processes of Government supervision. Neither can they properly be licensed, because there is no competent supervising or licensing body. The Government may properly license a plumber, because it can provide the proper examination boards for plumbers; it can properly license young men to practice medicine, because it can provide the proper examination for that profession, and these boards can testify to the fitness of candidates, but the Government can not provide any board of officials competent to testify to the fitness of the medical investigator.

4. The advocates of antivivisection laws consider themselves more humane and merciful than the opponents of such laws. To my thinking these unthinking advocates are really cruel to their own race. How many cats or guinea-pigs would

you or I sacrifice to save the life of our child or to win a chance of saving the life of our child? The diphtheria-antitoxin has already saved the lives of many thousands of human beings, yet it is produced through a moderate amount of inconvenience and suffering inflicted on horses and through the sacrifice of a moderate number of guinea-pigs. Who are the merciful people—the few physicians who superintend the making of the antitoxin and make sure of its quality or the people who cry out against the infliction of any suffering on animals on behalf of mankind?

It is, of course, possible to legislate against an improper use of vivisection. For instance, it should not be allowed in secondary schools or before college classes for purposes of demonstration only; but any attempt to interfere with the necessary processes of medical investigation is, in my judgment; in the highest degree inexpedient, and is fundamentally inhuman.

Very truly yours,

C. W. ELIOT.

HON. JAMES McMILLAN.

Coming from such a high source, I can not but feel that it will carry conviction, both by the force of its statements and the lucidity of its logic. I call your especial attention to the ground taken by President Eliot, that it is the antivivisectionists who are inhumane and cruel to the last degree, because they would condemn both man and animals to suffering and death by impeding the progress of medical science.

MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION.

By its constitution, the members of the ASSOCIATION consist: 1, of delegates; 2, of members by invitation; 3, of permanent members, and 4, of members by application. I wish to call your attention to the desirability of limiting the members by invitation to foreign delegates, eminent foreigners whom the Sections may desire to invite to read papers and take part in the discussion, to members of the medical staff of the United States Army, Navy and Marine-Hospital Service, and to the occasional visiting physicians from our possessions outside of the limits of the United States proper. It has been the custom in most of the Sections to invite medical men of distinction who are not members of the ASSOCIATION to read papers before the Sections. Some of these gentlemen have been even openly hostile to the ASSOCIATION, and yet year after year have had the courtesies of

the ASSOCIATION extended to them. They have availed themselves of these privileges and advantages and yet not only privately, but sometimes publicly, have expressed their hostility to the ASSOCIATION.

It seems to me that the time has now come when this practice should cease. Membership in the ASSOCIATION is open to every American, and any one who does not choose to avail himself of the privileges and advantages of membership by joining the ASSOCIATION should be debarred from them.

During the present year I have sent a courteous circular letter to each person so invited by the various Sections, but not a member of the ASSOCIATION, enclosing a form of application and inviting him to become a member of the ASSOCIATION. I am glad to say that a very large number have availed themselves of the opportunity of doing so. The Constitution prescribes that the members by invitation shall be invited by "the meeting after an introduction from and being vouched for by at least three of the members present or three of the absent permanent members;" and in the order of business, the third order is the "reception of members by invitation." No such formality, it seems to me, is desirable. The extending of such an invitation to distinguished foreigners and others that I have suggested may well be left in the hands of the Sections, with the exception, it might be, occasionally of persons of unusual distinction.

SECTION ON PATHOLOGY AND THE PATHOLOGIC EXHIBIT.

One of the important features of the AMERICAN MEDICAL ASSOCIATION is to promote the scientific side of medicine. It has seemed to me that the ASSOCIATION was not fulfilling its duty to scientific medicine in one particular. There is scarcely a more important branch of modern medicine than pathology and bacteriology, and yet no Section for the consideration of these subjects is provided. Although it was not authorized by the ASSOCIATION, I had such confidence in your intelligent and hearty co-operation that I ventured to ask a number of gentlemen to act as a provisional or unofficial committee to organize a Section on Pathology and Bacteriology, under the chairmanship of Dr. Ludvig

Hektoen, of Chicago. These gentlemen have ably performed their task and they have presented a most attractive program. You will be asked officially to authorize the formation of such a Section, and I can not doubt what your action will be.

In connection with this, I also appointed a provisional or unofficial committee on a pathologic exhibit, in charge of a committee, of which Dr. Joseph Stokes, Moorestown, N. J., is the chairman. Dr. Frank B. Wynn, Indianapolis, Ind., has acted as secretary of both committees. I but ask you to visit the adjoining exhibit to be convinced of how faithfully and intelligently this committee has performed its task. They communicated with a large number of medical schools, museums, and individuals and have met with a most hearty response from all sides. They did not deem it wise that the exhibit should be either by states or by institutions, lest there should be aroused a rivalry, which would in some sense smack of egotism and lead to future disaster; but asked all to subordinate their individual and institutional interests to the broad general interests of science.

THE ANNUAL EXHIBIT.

The management of the annual exhibit is a matter of considerable importance to the ASSOCIATION. The exhibit is an important financial aid to the local committee which has charge of the meeting of the Association.

So far as I know there are no rules governing the charges, the classes of exhibits, or other regulations by which this committee may be guided. Each new committee is a law unto itself. It has seemed to me that if there could be a permanent committee on the annual exhibit, this would be of great advantage, especially if the committee were made up, in part at least, of those who had had experience with former exhibits. It would seem to be desirable that each year the chairman or some other member of the committee on the last exhibit should be added to the committee to replace one of the earlier members, who would retire. I recommend, therefore, that such a committee, to have charge of the exhibit at the annual meeting, be appointed **this year**, this committee to have power to add to its numbers and nominate a chairman who shall reside in the place

at which the succeeding meeting is to be held, and as many other local members of the committee as may be deemed necessary to carry on the work. The general committee could formulate general rules governing the exhibit and the local committee could carry out the details.

THE SECTIONS.

The work of the Sections has been, heretofore, in many respects admirably done. The tendency to correlate the papers which are presented under certain specific heads, and to select one or more important topics for consideration, inviting a few distinguished speakers to open the debate, which is then thrown open to all, has been marked in the last few years. The advantages of such a course are so obvious that I trust the chairmen, secretaries and executive committees of the various Sections will hereafter strive for even more important debates and more important results than have been thus far achieved. Room should certainly be reserved for a certain number of volunteer papers, but to allow the major part of the time of the Sections to be taken up by a mass of heterogeneous papers on unrelated topics would be a great misfortune.

The policy of *THE JOURNAL*, also, in connection with the various papers read before the Sections is an important one. Papers vary greatly in their merit and importance, and it would seem to me that to the trustees and the editor of *THE JOURNAL* should be confided the entire responsibility of selecting the more important papers for publication in full, and of presenting the less important in longer or shorter abstracts. The example of the *British Medical Journal* may well guide us in this matter.

I ventured to correspond with the chairmen and secretaries of the various Sections as to the hour of the Section dinners. Very frequently this has been fixed at nine o'clock, an hour which was too late for the usual dinner and too early for a second one. Moreover, when the dinners are fixed at so late an hour, if they are to be followed by after-dinner speeches the hour at which the Sections can break up and seek a much-needed rest is so late that it interferes seriously with the work of the suc-

ceeding day. Almost without exception, the officers of the Sections preferred the usual dinner hour, about seven o'clock, both for material and intellectual reasons. It is often difficult to arrange this matter with the hotels at which the dinners are usually given, but the ASSOCIATION, I think, might insist, as but a single evening is occupied by these dinners, that for the one occasion the hotels who profit so largely by the meeting should accommodate the ASSOCIATION in this matter.

THE COMMITTEE ON THE THIRTEENTH INTERNATIONAL MEDICAL CONGRESS.

Early last autumn Prof. William Osler, who had been requested to organize the American Committee on the coming International Congress, invited the President of the AMERICAN MEDICAL ASSOCIATION, and the Presidents of the various associations of medical specialists to form a committee to assist in organizing the International Medical Congress which is to assemble on August 2, in Paris. This Committee, and especially its chairman and secretary, have done the work exceptionally well. Of course, there is need of money for printing, postage, and clerk hire. At a recent meeting in Washington, the various societies, represented by their chairmen, were invited to contribute \$25 each toward the expenses. I recommend that an appropriation of \$50 be made from the funds of the AMERICAN MEDICAL ASSOCIATION toward the expenses of this committee.

ENDOWMENT OF MEDICAL SCHOOLS.

Turning, now, from the affairs of the ASSOCIATION, I wish to say a few words in reference to a subject of paramount importance which I am sure will appeal to the sympathies of all present, namely: the need for endowments for medical schools.

The tide of charity in the United States has reached a remarkable height. The *Chicago Tribune* publishes an annual list showing that in 1894 the charitable gifts and bequests in the United States amounted in round numbers to \$20,000,000; in 1895, to \$29,000,000; in 1896, to \$34,000,000; in 1897, to \$34,000,000; in 1898, to \$24,000,000; and in 1899, to the enormous sum of nearly \$80,000,000.

But a small portion of this charity, however, has been bestowed upon medical schools. It is mostly to colleges, theological schools, hospitals, museums, and libraries, that the principal amount has been given. The cause for this, I think, has been chiefly the vicious method in which all our medical schools were formerly conducted. They were practically joint-stock companies, organized for the benefit of the faculties. As Professor Bowditch has said, one might as well expect the public to endow a cotton-mill as to endow such a school. The day of these private enterprises is now, happily, nearly past. The respectable schools of medicine are now conducted by trustees, a body of men wholly apart from the faculties, who manage the affairs of the medical school just as they would those of a university, taking control of the income and expenditures of the school, placing the professors and other teachers upon salaries, and conducting the affairs of the institution on broad lines of educational progress. Partly as a result of the influence of the profession exerted through the ASSOCIATION, the courses of study at the medical schools of to-day, and, therefore, the necessities of the student, are so wholly different from those of twenty-five years ago that it may be well termed a new era in medical education. As a consequence of the broadening and lengthening of the medical course of study, the cost of medical education has enormously increased. The public at large does not at all appreciate this changed condition, and even you, members of the profession itself who may have graduated many years since, scarcely appreciate to its full value the difference. As a consequence, the fees of the students, which can scarcely be raised beyond the present amount, are wholly inadequate for providing a proper medical education, and the medical school appeals, as does the college and the theological and the technical school, for wise and liberal endowments in order to provide this suitable education. "There is no branch of education," says President Eliot of Harvard, "which more needs endowment. Medical education is very expensive, because it has become, in the main, individual instruction. Large lectures and crowded clinics are seen to be of really very limited application, so that

year by year the medical teaching becomes more and more costly."

What were the necessities of a medical school twenty-five years ago? Two lecture-rooms, in which seven professors talked, a dissecting-room, and, if possible, a clinic, which was occasionally, but rarely, in a college hospital. Practically the instruction which the student obtained, with the exception of dissecting, was limited to "book-knowledge" and "ear-knowledge." The student was not brought into contact with any patients or any concrete facts, observations, or experiments. He only listened to what his teachers said about them. Millions were given to hospitals in which the sick were treated, but only sixpences to medical schools, in which the men who are to care for their future patients were trained. "Spain," says Lyman Abbott, "in the late war had nineteenth-century guns and sixteenth-century men behind them. We know what came." Our splendidly-equipped hospitals are the nineteenth-century guns. Insufficiently trained doctors are the sixteenth-century men. The time has certainly come when the "men behind the guns" must equal in efficiency the weapons with which they do the fighting.

To perform a tracheotomy and rescue a child suffering from diphtheria is a dramatic occurrence which appeals to every one. To conduct a long series of experiments in the laboratory, by means of which the cause of diphtheria shall be found and the necessity for a tracheotomy avoided, appeals only to the educated few; yet the service done by the operation is a service only to the one patient who may be rescued by the knife, while the other is a service to hundreds and thousands of patients who, for all time, will escape both the knife and the disease. Yet, such a series of experiments in preventive medicine brings no reward in money, a limited reward in fame, and only its largest reward in the consciousness of giving a great boon to humanity, for which it never can pay.

The era of the man who simply listened to what his teachers had to tell him and then went on his way, as a "rule of thumb" man, is happily past. This is the era of the trained man and the trained woman, and training

means opportunity provided by the community and time, labor and money given by the man.

Let us look for a moment at what a medical school now needs. It stands for two things: 1. "Thing-knowledge," instead of "book-knowledge" and "ear-knowledge," teaching the facts of modern science, by scientific methods; that is to say, methods of precision. But 2, no medical school should be content simply with imparting the knowledge that exists. It should push back the boundaries of ignorance and, by research, add to existing knowledge.

In the accomplishment of the first duty of the medical school, there are required, first, didactic lectures. I am not one of those who believe that the day of the didactic lectures is past. "Never," said President Faunce, of Brown University, in his notable inaugural, "never shall we be able to do without the personality of the teacher, flaming with enthusiasm for knowledge, pressing up the heights himself and helping the student on."

In the 156 medical schools in this country there are, perhaps, over 1500 members in their faculties. In all of them are inspiring teachers flaming with enthusiasm, for a not inconsiderable proportion may properly be so described, and the influence of such enthusiastic teachers is felt by the entire class. One or two such men in every school make a good faculty.

Besides the didactic lectures, a good working library and a reading or study room is a requisite. And it is a matter of no little encouragement that in the reports of the U. S. Commissioner of Education for 1898, 72 medical schools reported 151,433 volumes in their libraries.

The great difference between the modern method of teaching medicine and the older method consists in *laboratory instruction* and *clinical instruction*, both of which must be individual. Laboratories are very costly. They require buildings, equipment, and assistants. The number of laboratories required in the present day in a fully equipped medical school is astonishing. First, the dissecting-room—the anatomical laboratory—and along with this a laboratory of histology, and another which may be combined with it, a laboratory of embryology. Next, a physiological laboratory, in which

each student will not become an accomplished physiologist, but will become familiar with physiological methods and be trained in exact and careful observation; a laboratory of chemistry and, combined with it, especially, a laboratory of physiological chemistry; in the department of materia medica, a laboratory of pharmacy, where the student will not become a good pharmacist, but will learn the essentials of pharmacy so that he will not make, at least, gross mistakes, which, otherwise, would constantly occur. Still more important is a laboratory of pharmacology, in which he will learn the action of drugs and be prepared rightly to use them. In obstetrics, a laboratory of practical obstetrics and obstetric operations is essential. In surgery, he needs a laboratory in which he shall be taught all the ordinary surgical operations. In pathology, he needs a laboratory of morbid anatomy, a laboratory of bacteriology, and a laboratory of hygiene. The mere statement of this catalogue of thirteen laboratories will enforce the fact that enormous expense not only for the installation, but also for the running expenses, will be required. To show what one university abroad does, Professor Welch has stated² that the Prussian government expends, outside of the salaries of professors in the University of Berlin alone, over \$50,000 annually. What American medical school can show anything approaching an endowment which will provide such a sum?

And what has not the laboratory done for us within the last few years. It has discovered the cause of tuberculosis, tetanus, suppuration, cholera, diphtheria, bubonic plague, typhoid fever, erysipelas, pneumonia, glanders, and a host of other diseases; it has shown us how to avoid all danger from trichina, so that our entire commerce in hog-products is conditioned upon the laboratory; it has shown us how to banish suppuration, erysipelas, tetanus, and pyemia from our hospitals and reduce our death-rates after operation from 50 or 33 per cent. to 10 per cent., 5 per cent., 1 per cent., and often even fractions of 1 per cent; it has given us a really scientific hygiene in which we no longer guess but know;

2. Higher Medical Education and the Need for Its Endowment. *Medical News*, July 21, 1894.

it has shown us the rôle of the mosquito in malaria, of the rat in bubonic plague, of the fly in typhoid fever; it has given us the power to say to diphtheria "thus far shalt thou go and no farther;" it will give us the power to utter a pæan of victory over typhoid, cholera, bubonic plague, tuberculosis, yellow fever, cancer, and other implacable enemies of the human race—and yet there are those who would stay this God-given hand of help!

And the laboratory has had not only its devotees but its heroes. Listen to the story of but one. Dr. Franz Müller, of Vienna, was one of those who in his investigations of the bubonic plague in 1897 contracted the dreaded disease from the bacilli in his culture-tubes. When he became certain that he was infected he immediately locked himself in an isolated room and posted a message on the window pane, reading thus: "I am suffering from plague. Please do not send a doctor to me as, in any event, my end will come in four or five days." A number of his associates were anxious to attend him, but he refused to admit them and died alone, within the time he predicted. He wrote a farewell letter to his parents, placed it against the window, so it could be copied from the outside, and then burned the original with his own hands, fearful lest it might be preserved and carry the mysterious germ. Can you find me a finer example of self-sacrificing altruism? Was ever a Victoria Cross more bravely won?

But the establishment of laboratories, with their attendant expenses, is not the only improvement in our medical curriculum. Every well-conducted medical school requires a large hospital in connection with it. Here must be installed again a fourteenth laboratory of clinical medicine in which all the excretions of the body will be examined, tumors studied, cultures and blood-counts made, or else the patients in the hospital, from the modern point of view, are neglected. It is not too much to say that a patient requiring such examinations, be he the poorest of the poor, has his case more scientifically studied, more exactly measured, more precisely treated than most rich patients in sumptuous homes.

Again, the individual instruction to which President Eliot referred is now carried out in all of our best medical school hospitals by the establishment of small ward-

classes, by whom or before whom the patients are examined, prescribed for and operated upon by the professor or instructor, each student bearing a part; and so, by having his investigations directed, his powers of observation cultivated, his mistakes pointed out, his merits applauded, the student graduates from the medical school equipped as none of us, alas, ever had the opportunity to be. All of these laboratory and ward classes imply an enormous increase in the number of assistants, young men striving not only to perfect themselves, but by teaching, to forge to the front so that the best men will win in the struggle for preferment.

Again, the course of study has been prolonged from two years, as it was 20 to 25 years ago, to four years, and in addition the terms have also been lengthened. When I was a student the course of study consisted of two sessions of about 19 weeks each, or 38 weeks in all. Now the course consists, as a rule, of four sessions of 32 weeks each, or a total of 128 weeks, an increase of 90 weeks, nearly $3\frac{1}{2}$ times as much as it was 25 years ago. In 1885, 103 schools had courses of two years, and 5 schools courses of three years. In 1899, 2 schools had courses of two years, 10 of three years, and 141 of four years.³

It can be easily seen that from this additional time required another source of expense has arisen besides the increased number of assistants. The time given to teaching by members of the faculty, as a rule, has been more than tripled, as compared with twenty-five years ago. In addition to this, professors in charge of laboratories must practically give their whole time to the work and are precluded, therefore, from any income from practice. These men must receive salaries sufficient for them to live on.

Surely this statement of the difference between the education given twenty-five years ago, which required but little expenditure of money and resulted in considerable incomes, and the modern methods of education in the laboratory and the hospital, as well as the lecture-

3. Monographs on Education in the U. S.; No. 10, Provisional Education, p. 11. James Russell Parsons, Jr., Dept. of Education for the U. S. Commissioner to the Paris Exposition of 1900.

room, which require enormous expenses, is an ample reason for large endowments.

But, the function of the medical school, as I have said, should not be limited merely to the imparting of existing knowledge. No school is worthy of the name that does not provide for greater or less research work by which substantial additions to our knowledge may be made and the facilities and the results of the healing art made more efficient for the welfare of mankind. Twenty-five years ago there were practically few young men who were fitted for research work, especially laboratory work. Now every well-equipped school has attached to it, in one way or another, a score or more of young men who are eager for work, longing for the opportunities for usefulness and distinction if they can only obtain a bare living. When in my own school I look around me and see these young men thirsting for such opportunities, I am often heartsick at our want of facilities for this purpose, and I long with an intense longing for some wise and munificent friend of humanity who will endow post-graduate scholarships, fellowships and laboratories for just such an end. Our hospitals do a magnificent work in charity, helping the sick and the forlorn, the weak and the suffering in a way which appeals to the charitable instincts of our fellow-countrymen, and to this appeal they have responded most generously. *But I venture to say that the medical school which trained a Lister, a Pasteur or a Koch has done more for humanity than all the hospitals of this country combined.* The modest laboratory at Würzburg consisted chiefly of a Ruhmkorff coil, and a Crookes' tube—and Röntgen. Other Röntgens and Listers we have among us if we but knew it. These are the men who are the world's real illustrious heroes.

It is especially in these days that in America we need such researches, for our tropical possessions have brought us face to face with new problems which we can only justly meet by the most careful investigations. It is to our credit that several of our medical colleges have already established schools of tropical medicine, which show that the profession, as well as the public, are rising to the level of our responsibilities and duties.

It is also a cheerful sign of the times that at Harvard a School of Comparative Medicine has been established, which will lead to other similar schools in connection with our medical colleges, for the broad study of disease both in man and in the lower animals. All such knowledge should be correlated, and we may well learn from the diseases of animals how to care for man, as thus far we have learned chiefly from the diseases of man how to care for animals. The endowment of this school with the modest sum of \$100,000 is an omen of future good. So too, the somewhat similar school at Buffalo bids fair to add immensely to our knowledge and therefore to our ability to heal.

What now has the American public done for the medical school? Let us contrast it with the endowments in theology. Our academic institutions have such an enormous sum-total of endowments that I do not even consider these. Let us, however, compare theology and medicine, remembering that theology is almost wholly a literary study, dealing not with the facts of Nature, requiring no laboratories and no large corps of assistants and therefore conducted at a minimum of cost. In 1898⁴ 84 theological schools reported endowments of \$18,000,000, and 71 schools do not report this item; 19 out of 151 medical schools report endowments of \$1,906,072. Five theological schools have endowments of from \$850,000 to \$1,369,000 each. Yet in 1899 there were only 8000 students of theology for whom this enormous endowment was provided, as against 24,000 students of medicine. Each theological student had the income of an endowment of \$2,250 provided for his aid, each medical student the income from \$83. As against 171 endowed chairs of theology there are only 5 in medicine.

I do not grudge a dollar to the theologian, but I plead for his medical brother, that, with a vastly more expensive education he shall have a reasonable provision made for his training.

I have already indicated to some extent the direction which these endowments of medical schools should take. They may be classed in three cate-

4. U. S. Education Report.

gories: 1. The endowment of professorships. By doing this the salary of the professor would be made available for the other wants of the school. The endowment may well take the form of a memorial, either of the generous donor, or, still better, of some distinguished former occupant of such chair whose name would always add luster to it. 2. The endowment of the laboratories which, as I have indicated, are so costly, both in their installation and in their yearly expenses. 3. The endowment of post-graduate scholarships and research fellowships, these being intended especially for those who will devote their time to original research. Students can not take much time for original research; their regular studies will absorb all their energies. Research must be done chiefly by young graduates under the direction of stimulating and energetic members of the faculty.

It is not, I trust, too much to hope, if not now, that in the near future the AMERICAN MEDICAL ASSOCIATION will set a fruitful example by giving each year "Scientific Grants in Aid of Research." The first object of the ASSOCIATION must be, necessarily, to place itself on a strong financial basis. It should own its own building, its printing and publishing plant, and, as soon as possible, should have a reserve fund of considerable proportions. Nothing conduces to the stability and conservativeness of any institution like a good bank balance. The British Medical Association has to-day an excess of assets over liabilities of nearly \$380,000, chiefly invested in its building at 429 Strand, London. The AMERICAN MEDICAL ASSOCIATION has made a fair start with a surplus of over \$27,000 last January, and, with its large, and, let us hope, rapidly increasing membership, it will before long assume a rank second only to the British Medical Association. Last year⁵ the Scientific Grants Committee of the British Association allotted £741, or somewhat more than \$3,500, for research work, distributed to three research scholarships, the holders of which were paid \$750 each a year, and thirty-three grants in aid of research work, varying in amounts from \$25 to \$100.

5. Brit. Med. Jour., 1899, ii, p. 219.

Among those to whom grants were made occur the well-known names of Beever, Vaughan Harley, Kanthack, Luff, Manson, Noel Payton, and Risien Russell. I should hope that the AMERICAN MEDICAL ASSOCIATION might even now begin by a modest appropriation, say of \$500 a year, which should be allotted by the trustees, or by a special committee on scientific grants, after a careful investigation of the merits and the character of the person to whom such grants were made. No grant should exceed \$100, or possibly even, at first, \$50 in amount. The results of such grants would be not only absolute additions to our knowledge, but the cultivation of a scientific spirit which would permeate the whole profession and elevate its objects and aims.

In pleading for these endowments of medical schools. it is but a plea for a return to the profession of a tithe of what they have given. Two years ago I carefully investigated the value of the services rendered to the poor in the city of Philadelphia by the medical staff of the Jefferson Medical College Hospital alone, and I found that 129 medical men were then attached to the hospital, and their services, calculated on a moderate basis of ordinary fees, I valued at over \$500,000 annually. To a profession which gives so freely of that which is most difficult to give, its own life-blood, surely the public for its own protection may give reasonable endowments to its medical schools. It will be returned to the community tenfold in better educated, better trained and more successful doctors. More devoted, self-sacrificing men and women they never can have.

